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Editorials . . .

MECHANICAL HARVESTING —For the past week or more, the writer has been literally up to his ears in the subject of mechanical harvesting. While we have had our say, and it's a big one, we should like to emphasize here the tremendous savings involved in these new developments—so tremendous, indeed, as to merit cooperation and financial participation even before the results are proven. One sure thing, the firm that sits idly by and lets others get the jump on him, even for a season or two, will find it extremely difficult to meet the competition. The prospect of eliminating, or even lessening in some degree the processor's dependence on troublesome migrant labor is no less attractive than the savings involved. Who knows, some day the canner and freezer, may be to some extent at least, the master of his own fate.

PEA AND CORN PROMOTION FUND —It will be recalled that a year ago in December the National Canned Pea Council raised $36,000 and hired the services of Theodore Sills & Company to promote the sale of canned peas. The Sills firm developed in the neighborhood of 200 recipes, which were given broad national distribution to food editors. A number of these were featured. It's reasonable to believe that this effort had something to do with the increased movement and a better market tone.

But now that things are looking up a bit, it's the old, old story—no problems—no money. Since August the same group has been trying to develop a similar program for corn, and also for peas, but the money to support the program just isn't forthcoming. Subscriptions account for about two-thirds of the goal, but the agreement provides that unless the full amount is attained, the work will not be continued.

It should be recalled that in 1958 Wisconsin had a tremendous pea pack, and canners of that State felt obligated to assume most of the cost of this promotion, and most of it did come from Wisconisn. Only one national advertiser took part in the program.

It isn't too late to break the deadlock. The Sills organization is set up and can swing into action at any time. Those canners interested and willing to spend a half a cent a dozen for a program to popularize their product, instead of dropping prices from a nickel to 20¢ a dozen, are invited to contact Mr. John P. Kraemer of the Mammoth Spring Canning Company, Sussex, Wisconsin.

ATLANTIC CITY MAKES A PITCH —Within two weeks following the close of the successful convention at Miami Beach, this publication received a beautifully illustrated brochure introducing the modernized and enlarged Atlantic City Convention Hall. Here are some of the details of the $3½ million beautification and enlargement program scheduled for completion June 30, 1960:

The main lobby has been completely redesigned with easier access to information counters; escalators have been intsalled to carry traffic from the underground weather protected automobile approach to the two levels above; doors at the boardwalk level are now operated automatically by electric eye beams; electrically operated sound proof partitions can convert the exhibit space in the main convention hall into meeting rooms in a matter of seconds. There's new color, new light, and improved meeting facilities. There are now 320,000 square feet of exhibit space, 33 meeting rooms accommodating groups ranging from 125 to 35,000, an air conditioned ballroom capable of seating 5,000 persons if used as a meeting room, 2,200 as a banquet hall, and three exhibit halls which may be operated independently and simultaneously, or thrown together for one vast display.

The 1961 Convention is already scheduled for Chicago, January 23-26. Where the 1962 Convention will be held will probably be announced in May at the NCA Board Meeting. Where will it be? Miami Beach? Atlantic City? The West Coast? Or where? It's interesting to note that the Freezers are going to Dallas in 1962.

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FMC Experimental Tomato Harvester

Scott-Urschel Red Beet and Carrot Harvester

The Mechanical Harvesting Explosion

There's no need to dwell here on the events leading up to the present feverish activity in the development of mechanical harvesting equipment. Suffice it to say that local farm labor available for harvesting processing crops. is practically non-existent; domestic and foreign migrant labor, once in abundance, is now rapidly disappearing; and the red tape and high cost involved in recruiting, managing and housing these people is fast becoming insurmountable. Shortage of labor, or even a possible shortage, means the processor cannot be certain that crops will be harvested at all. And even when the crop is harvested manually, the lag time between field and the can, jar or package is often too great for optimum quality.

From an economic standpoint, there can be little question of the advantage (if not the necessity) of mechanical harvesting. The FMC Sweet Corn Harvester, first introduced commercially in 1949, and now in general use, is a good example of that. FMC engineers tell us one harvester equals the production of 10 to 15 hand pickers and reduces overall picking costs as much as 57 percent in some instances. Chisholm-Ryder engineers say the cost of harvesting beans by machine is about 25 percent that of hand labor, experimental fruit harvesting aids promise to cut packing costs by 50 to 60%. The harvester also works regardless of weather conditions, terrain or time of day while manual pickers work only under favorable conditions.

All of which is reason enough for an active interest on the part of management and the field departments of every canner and freezer. Those firms, in on the development work, will surely be far ahead of those who are not. Furthermore, the development of harvesting equipment frequently means a search for, and selection of, new variety types and overall field and plant management changes as well.

Much of the developmental work on harvesting aids and equipment has been done by individual growers, small equipment manufacturers, and experiment stations. Quite naturally too, the major equipment manufacturers serving the food processing industry are keenly interested. In an effort to bring "THE CANNING TRADE" readers up to date on what is being done, how far development has progressed, how widespread the activity is, and to some extent at least, who is doing it, this publication has contacted a great many people active in this work. The response has been overwhelming—to a point where it would be virtually impossible to reprint here a word for word account. In addition to the individuals and firms mentioned in this account, "THE CANNING TRADE" is especially indebted to the following for guidance and assistance: Jesse M. Huffington, Agriculturist, Eastern Division, Continental Can Company; Warren R. Spangle, Secretary, Indiana Canners Association; and William H. Sherman, New York State Canners & Freezers Association.—Edit.

ASPARAGUS

Several types of harvest-aid machines have been developed by asparagus growers. One person is carried, for example, at a slow rate of speed through the field to increase the hand-cutting efficiency. With three harvesters, one grower has reduced the number of hired hands from 24 to 3, but each machine costs approximately $750.

A completely mechanical Asparagus Harvester has a bandsaw type of blade which cuts all spears from a band 30 to 36 inches wide at or just below the ground surface immediately after they have been caught by gripping units. All spears, regardless of their length, are cut by this machine. Spears shorter than 3½ inches are below the normal gripping level and are not recovered. In trials only 55 percent of hand-cut yields were obtained due to loss of spears. It was estimated that if machine-harvested yields were 65 percent of hand-cut yields, the same net return per acre could be obtained. A mod-

ification of cultural and management practices such as bed height and harvest timing would be expected to improve the percentage of harvest yield. ; The bandsaw blade, as used in California, is unsatisfactory on sandy, stony soils. A short spear market, also, would be needed for such a harvester. No significant difference in weight has been found between hand and machine harvest but the machine harvested many spears under 4½ inches long.

While there is an apparent difference of opinion, a selective harvester is expected eventually. Growing on wide, flat beds with wheel tracks be tween is suggested, along with good chemical weed control.

SNAP BEANS

As is well known, outstanding progress has been made in the development and use of mechanical harvesting equipment for snap beans. The two-row, mounted Chisholm-Ryder machine, introduced but a few years ago, is for all practical purposes standard equipment for bean canners and freezers. The new (1960) model will be known as the **Adjustable** Bean Harvester—adjustable for rows from 26 to 36 inches apart. It is expected that the harvester will have at least as much capacity as the present CRCO machine—from ¾ to 1 acre per hour, depending on vine growth, length of rows, etc. Engineers are aiming at 1 to 1½ acres per hour on the new machine, based on 36 inch rows. Rows of less than 30 inches, despite adjustment down to 26 inches, are not advised.

Price of the CRCO Adjustable Bean Harvester for 1960 is $12,500. Only about eight machines will be made during the coming year and their distribution will be controlled geographically.

CULTURAL PRACTICES AND VARIETIES

The suggested cultural practices (the same for the adjustable machine as existing model) are as follows:

1. A flat type of cultivation, that is, no ridging.
2. Ample moisture at planting time so as to have even germination.
3. A higher rate of seeding, resulting in six to ten plants per foot.
4. Irrigation and application of nitrogen at budding time.
5. Planting most varieties of snap beans carrying their pods up in the plant with as determinate period of maturity as possible.

The Tendercrop variety, preferred by freezers, appears to be even better suited to mechanical harvesting than the Tendergreen type. It bears the pods well above the soil, produces a concentrated set of smooth slender pods which develop seeds and fiber rather slowly. White seeded lines suitable for mechanical harvesting, however, are much preferred by canners. Plant breeders are making efforts to overcome various difficulties in developing a satisfactory white-seeded line. While experimental line U.S.D.A. B-3125 produces large yields of pods excellent in quality, suitable for efficient processing, further studies are desired as to its adaptability to machine harvesting. Corneli 14, Tenderwhite, Pearlgreen and Processor are being used, in addition to other lines, while plant breeders are continuing their efforts to develop a bush type Blue Lake bean.

Lima beans and Southern field peas, such as Black-eye and Crowder, peas are now being harvested with a modified snap bean harvester. The varietal characteristics of black-eyed peas which make it suitable for mechanical harvesting are:

1. A bush type without extended growth characteristics.
2. A determinate period of maturity.
3. Pods that do not grow upright from the ground.

Equipment, also, appears to be on the way to pick up English or garden pea pods, leaving the vines and leaves on the field. Further selection and breeding of varieties of these crops better suited to growing for mechanical harvesting, also, is on the way.

The new CRCO harvester will be equipped for bulk handling. A trailer with hydraulic dump suitable for bulk handling will also be available for the older model harvester.

THE PAULSON BEAN PICKER

Convinced that picking snap beans is as exacting an operation as a good job of cultivation, CRCO engineers will, therefore, mount the new adjustable picker on an International 340 Tractor. The old argument between those who favor mounted-type equipment and those who favor pull-type will, however, undoubtedly go on forever. Unquestionably mounted equipment provides greater precision at a higher rate of speed, and it can operate with shorter headlands. By the same token, pull-type equipment allows for greater and more flexible tractor usage and is, therefore, less expensive. Size and type of farm operation will undoubtedly account for preference for some time to come.

At any rate, a pair of 17 year old Clear Lake, Wisconsin, twins, Bruce and Bernard Paulson, have come up with a pull type 2-row Bean Picker that has attracted considerable in-

Early Model Paulson Bean Picker

The Britt Two Row Beet Harvester

terest. To all intents and purposes (to this layman at least) the machine operates on the same principle as the CRCO Picker. Rotating reels with steel fingers poke the bush between fixed vertical steel teeth which strip the leaves from the bush. These fall onto a conveyor which joggles up and down beneath a powerful exhaust fan. Properly adjusted, the fan discards the leaves and trash while the beans ride the conveyor up and over to bins at the rear.

The Paulson Picker has a capacity of about an acre per hour and is priced at $5,825. Forty machines were sold in 1959, or as Mr. Paulson says "Sold themselves."

The twins completed their first model around Christmas 1957 when they were high school sophomores, experimented on their own two acre plot in 1958, made refinements, built three more machines for testing in various parts of the country. Tests proved immediately successful and the new machine was put into commercial production in March 1959. Their father, Howard Paulson, a long time Wisconsin canning employee, is president of the newly organized firm—Paulson Brothers Industries, Inc.

The boys are said to be mechanical geniuses. Fabricators made only seven changes in the working drawings the boys furnished to build the first model. Between classes they designed their own parts catalog and prepared an operator's manual. Father Howard says the boys never even saw the other picker until their design had been drawn up, designed, built and tried. He is pressing for early action on a $3,000,000 patent infringement suit brought against him by CRCO, confident that the twins have invented a machine for which U. S. patents, which have been applied for, will be granted.

Meanwhile the boys are completing freshman engineering courses at Augsburg College in Minnesota, dreaming, no doubt, of new worlds to conquer in the field of mechanical harvesting.

POLE BEAN HARVESTER

Food Machinery & Chemical Corporation is participating in the development of a Pole-Bean Harvester in conjunction with the Pacific Northwest Blue Lake Bean Processors. No information as to the status of this work has been forwarded to this publication.

RED BEETS AND CARROTS

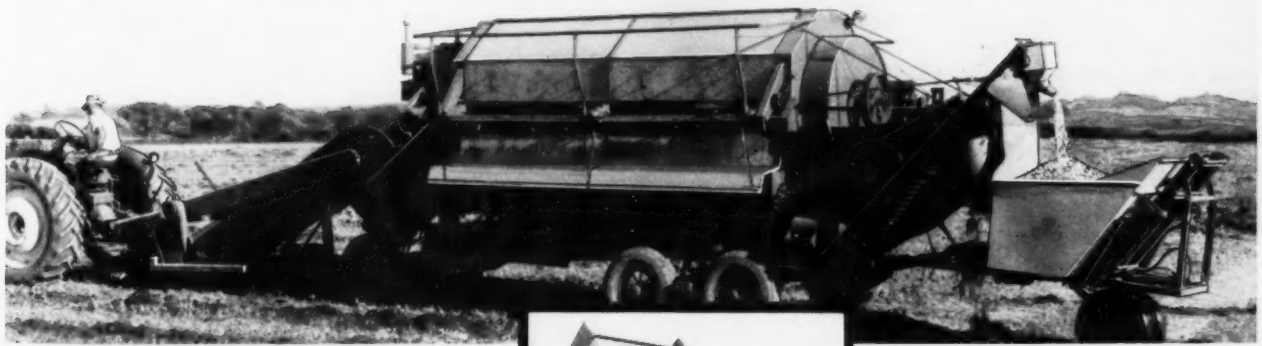
The Scott-Urschel Combine, manufactured by The Scott Viner Company for harvesting red beets, carrots, and other root crops, lifts, tops, and loads the product all in one operation. Approximately 600 of these machines are operating yearly in the United States and foreign countries.

A mounted one-row machine, it is said to be capable of harvesting three to six acres per day or 80 to 100 tons in a ten hour day. Although it is a high capacity machine, the low original cost and great savings in labor enable the machine to be owned and operated profitably by growers of as little as 15 acres. It is estimated that, in most areas, the machine will pay for itself within the first 50 acres of operation through the elimination of the cost of hand lifting, topping and loading.

The Combine is available in two models; the Model 004-R equipped with elevator for loading directly into a wagon or truck, and the Model 004-RXF equipped with sorting table which permits some hand sorting of culls, etc. in the field. This latter

Combine Peas and Lima Beans PROFITABLY...

with the Scott Improved Pea and Bean Combine



Threshes tender peas and limas thoroughly, cleanly with only one operator. The high capacity and drastic labor reduction enables this Combine to pay for itself in a short time from the reduction of labor alone. The same acreage can be handled faster with less equipment. This new Combine does not cost — it pays!

The new Scott Hydraulic, Bulk Handling Dump Hopper completes the dumping cycle in less than 2 minutes. The large capacity (1400 to 1800 lbs. peas) eliminates the need for trucks entering the field in most cases.

Larger hoppers are available for sweet corn and other products.

THE Scott Viner COMPANY 1224 KINNEAR ROAD, COLUMBUS 8, OHIO

model can be equipped with a bagger attachment, a conveyor for loading bushels or boxes, or a bulk loading elevator for discharging the roots into a wagon or truck after they are topped and sorted. A recent development for this sorting table machine, Model 004-RXF, is the belt type size grader which is designed to eliminate small diameter, undersized roots which are not suitable for dicing. These small roots can be collected in a hopper and dumped in piles in the field for later gathering if desired. Either model of the Scott-Urschel Combine can be equipped with power steering and/or hydraulic plow lift to eliminate operator labor and increase efficiency of the machines.

Another new improvement especially valuable in the harvesting of narrow rows is the wheel arrangement on the machine. The wheels are located under the Combine so that they do not run between unharvested rows. This eliminates the packing of soil around the roots and eliminates damage to the top growth formerly experienced in the harvesting of narrow rows.

The standard Scott-Urschel machine has a topping unit which pinches off the top growth at the crown of the root without damage to this root. This is ideal for storage and shipping. Due to the high cost of trimming the crowns and tips in the plant, Scott engineers are experimenting with a topping unit to cut the crown from the root to reduce hand trimming. This new topping assembly will be interchangeable with the standard topping mechanism and the conversion from one to the other can be made with little delay in operation. This topper is still experimental, however, test reports are encouraging. All present users of the Scott-Urschel machine will be notified if and when this unit is perfected.

TWO-ROW HARVESTER BUILT

Donald C. Britt and Richard Glazier of G. F. Britt & Sons, large growers in Byron, New York, using parts from the Scott-Urschel machine and adding a few of their own, assembled a two-row Beet Combine this past season. This one machine which cost some $15,000 to put together, successfully harvested the 1959 Britt crop of 340 acres—approximately 2 percent of the entire U. S. tonnage. To operate, it required one tractor driver, one truck driver, and one harvester operator, and had a capacity of something over an acre per hour—about double the one-row machine.

The machine attracted considerable interest in New York State, operating under a very wide range of conditions during a four-month harvest period. In one instance, it operated so successfully in heavy mud that a 5 plow size wheel tractor could not pull a wagon beside the elevator.

CABBAGE LOADER

Conveyor belt harvester-loaders are being used in Florida with a reduction of labor—approximately one-half that required for hand harvesting. Damage to the heads was less from the use of the mechanical harvester aid than when harvested by conventional hand methods.

SWEET CORN

As mentioned in the introduction, the tractor-mounted two-row Sweet Corn Harvester, now in general use, reduces picking costs approximately 60 percent and replaces ten to fifteen hand pickers.

PICKLE PICKER

Three years of development has resulted in a design for a commercially acceptable harvester. Twenty-five CRCO machines will be made in 1960, costing $7500 each. These CRCO Harvesters have already been sold and no further sales are possible for 1960. The capacity of the harvester is about three-quarters of an acre per hour on rows which must be spaced at least six feet apart. CRCO is suggesting tenty-five acres per harvester per year. The field may be picked as many times with the harvester as it is by hand. Quality and yield per acre is said to be about the same as hand picking. Cost of operation is estimated to be one-third of the cost of hand labor.

The success of these harvesters will depend to a large extent on the varieties, cultural practices and the operators. The future looks promising as plant breeders are developing varieties better adapted to mechanical harvest. Experience will prove out suitable cultural practices in different areas and the number of trained operators will increase.

PEAS AND LIMA BEANS

In recent years, four major equipment firms—Chisholm-Ryder, Food Machinery, Hamachek, and Scott Viner—have conducted research and development in an effort to produce a Pea and Lima Bean Combine adaptable to the varieties and growing conditions throughout the country.

POD PICKER

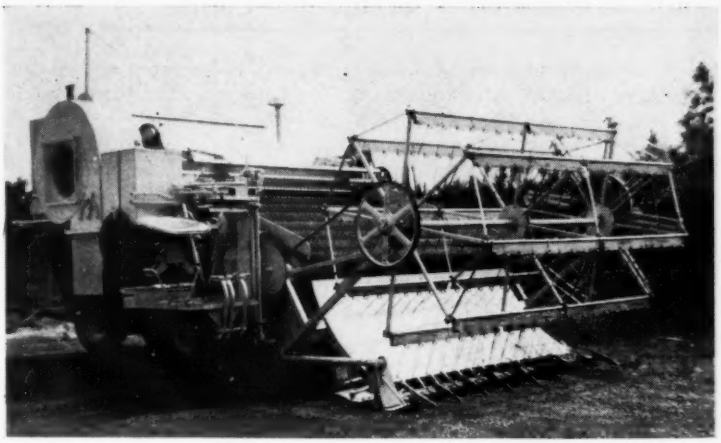
Chisholm-Ryder has halted development work on the Combine as such

Shelled Peas from the Scott Combine are hydraulically dumped into hoppers and quickly hauled to the plant where they are handled by fork lift.

Scott Bulk Handling Dump Hopper

and is concentrating on a Pod Picker which in one operation cuts the vines, separates the cut-up vines from the pods, spreads the vines in the field, and loads the pods into trucks for hauling to viner stations. With the Pod Picker CRCO hopes to: 1. Cut the cost of hauling in half; 2. Increase the capacity of the viner fourfold; 3. Feed the pods into the viner mechanically; 4. Make it possible to hold the peas in the pod longer without loss of quality; 5. Locate the viner at the factory; 6. Eliminate vine juice flavors. Tests will be run in 1960.

FMC, not one of the traditional suppliers of viners, has for a number of years been experimenting on a Combine that employs a new principle of separating the peas from the pod in the vining operation. Tests in the past three years are reported as promising with expectation of a production machine in the near future.



CRCO Developmental Pod Picker

THE SCOTT COMBINE

The Scott Combine, employing the proven impact principle of the stationary viner, is the only Pea and Lima Bean Harvester-Viner in commercial production and use. Some idea of the success and acceptance of this machine is indicated by a short review of the production schedule.

In 1951 Scott began manufacturing and selling the combine on a limited basis. As the seasons passed, the machine was constantly improved and, as it was, became more popular. Yearly production was increased and in the past three seasons Scott produced and sold 25 units per year. During the 1959 season 113 Scott Combines operated throughout the United States, Canada and Australia. Scott's production program for 1960 calls for 75 Combines.

DUMP HOPPER

Perhaps the largest single factor contributing to the increased popularity of the Scott Combine is the new bulk handling Dump Hopper. This unit enables the Combine to be operated by one man, increases the capacity and efficiency of the machine, and reduces the cost of handling the shelled product at both the processing plant and in the field. Due to this improved method of threshing and handling, one processor reports the peas were in the can 45 minutes after the vines were cut. Logically, this should increase quality and flavor. This Hopper has a capacity of approximately 1800 pounds of peas and completes the dumping cycle in less than two minutes. The receiving hoppers (on wheels) are taken quickly to the Plant where they are handled by fork lift trucks. Stock tanks on dump body trucks and dump bodies lined with masonite are also used.

Due to the great success of the Scott Dump Hopper for Peas and Lima Beans, The Scott Viner Company has developed similar bulk handling equipment for use with Sweet Corn Pickers, Green Bean Pickers, and other harvesting equipment. Hoppers are available in two sizes with capacities up to 4500 pounds of sweet corn. Two types of frames are offered which adapt the Hoppers to almost any application and the hydraulic lifting and dumping mechanism has been standardized for any combination of frames and hoppers so that one unit can do several jobs. As a result of this design there is a substantial savings in the original cost to the user.

Normally, the Combine will deliver the same capacity as two stationary viners with a fraction of the labor required. Vine loading, hauling, stacking and disposal of threshed vines, pea box maintenance and handling, and hand feeding of stationary viners are all eliminated. It was estimated by the Department of Labor of one State where a large number of Scott Combines are located, that each Combine threshed an average of 123 acres of peas (many threshed a like acreage of lima beans) and that each Combine replaced approximately 13 laborers. This is an outstanding saving.

This Combine is designed and constructed, according to Scott engineers, to keep maintenance cost to a minimum. Sealed, self-aligning bearings, silent V-Belt and roller chain drives, abrasion and corrosion resistant high tensil steels are used generously throughout. Many new optional accessories have been developed recently to increase operating efficiency. One of the most outstanding is the Pea Cleaner Blower which removes light chaff, bits of pods, and other foreign material from the threshed product.

Scott Viner sales engineers urge all processors who are not presently using the Combine, to see the machine in operation during the coming season.

IMPROVING PRESENT EQUIPMENT

The well known H. D. Hume Company, largely responsible for the demise of the pitchfork in handling peas and limas, has constantly improved its equipment, not only for peas and limas, but for pumpkin, spinach, and other greens.

Developmental FMC Pea Harvester

The green crop loader for peas has been largely replaced by pea harvesters (Tractor Rowers) consisting of a pick-up reel and a draper apron and a flexibly attached cutter bar which follows the contour of the land.

Easier and more efficient feeding of viners has been made possible by extensions on the feeders bringing them to ground level or near ground level.

PUMPKIN LOADER

A loader for handling windrowed pumpkins elevates the crop to desired height for discharge into trucks or wagons. The capacity is said to be up to 60 tons of pumpkins per hour.

SPINACH HARVESTER

Today two or three operators with Spinach now do the work formerly done by 50 to 60 persons. Hand operators cut the spinach below the ground, and it was transported to the factory in baskets or crates, where it was trimmed and sorted by men on the inspection belts. The system followed quite generally today is to cut the spinach above the rosette level with harvesters designed for this purpose. The cut leaves are elevated by the machine into large trucks where they are handled in bulk. Considerable savings in labor at the factory results. The latest (Cutlode) harvester is reported to have a capacity of 15 to 30 tons per hour.

SWEET POTATOES

Sweet potatoes still are harvested mostly with some type of plow or digging blade that lifts them from the ground. This is especially true when the crop is to be stored and bruising must be avoided. In recent years some growers have removed vines by a rotary type mower mechanism with special discs on each side to cut the vines. The roots are then dug by a modified white or Irish potato digger, setting the elevator to move at a slow rate of speed to avoid bruising as much as possible.

TOMATOES

The concept of a mechanical Tomato Harvester is, by its very nature, an exciting one. The 4 million plus tons of tomatoes harvested annually for processing is three times the volume of any other vegetable. Furthermore, the fruit is tender and would not seem to lend itself to mechanical harvesting. As little as three years ago the idea was only a dream shared by a handfull of forward looking individuals engaged in horticulture. When Doctors E. C. Stevenson and Mark L. Tomes of Purdue University ventured the opinion that mechanical harvesting of tomatoes was a necessity and the ultimate conclusion in this endeavor would be based on the development of a proper variety of tomato, the pronouncement was viewed with a great deal of skepticism and outright disbelief. When it became known that Professors S. K. Ries and B. A. Stout of Michigan State University saw promise of adapting a pickle picking machine to tomatoes, there was still a great amount of skepticism. Nevertheless, these gentlemen at Purdue and Michigan State continued their experiments.

A crude mechanical Tomato Harvester was built in 1958 at Michigan, a more elaborate machine in 1959. A dwarf tomato plant variety, suitable for mechanical harvesting, that produces fruit of normal size, was tested in trials at Purdue in 1957. The most promising of these, "Epoch" was only given its name in December 1959. Meanwhile three well know equipment firms became interested in the tomato picking machine,—Chrisholm-Ryder in the machine at Michigan State and Food Machinery & Chemical Corporation and H. D. Hume Company in the development work at Purdue.

Today it is said "the future of mechanical tomato harvesters looks even more promising than mechanical harvesters for beans, peas or pickling cucumbers appeared during the early stages of their development."

1959 EXPERIMENTAL MACHINES

The machine at Michigan State used the potato digger principle of digging the plant. The pickup was made from two cultivator sweeps overlapped in the center and operating just below the soil surface in order to pick up loose fruit on the ground.

Overhead fingers pulled the vines back on to the elevator. The elevator chain moves under the plants and carries them to a separating bed at the rear of the machine.

The separating bed consists of several rods mounted in a frame which reciprocates at 175 to 200 rpm in a four inch stroke. The fruit is shaken off the plant and falls onto an inclined rubber belt. The belt moves up the slope, discharging the dirt and trash at the top, the fruit rolls down the incline onto a conveyor and are elevated into storage boxes on the trailer.

Inclined plane fruit collecting units. The collector on the left has been pushed into position. The one on the right is being moved in.

Inclined plane collecting units in actual use. The cherries separated by a hydraulic shaker have rolled down and into a hand cranked conveyor by means of which they are being transferred to cherry lugs.

The machine developed by Purdue engineers, and being worked on by the Hume Company, uses a different principle for harvesting. The pickup was made from triangular mower blades mounted on fingers set to run under the soil. The elevator belt was solid rubber, the separator mechanism had a series of rollers with flat strips of belt about four inches wide attached, which rotated and knocked the tomatoes off the vines, rollers were spaced about six inches apart so that the separated fruit could drop between them.

A series of slowly rotating wire fingers above the rotating and separator pulleys held back the vines and tended to roll them and carried the vines through the machine where they dropped onto the ground.

At Purdue Food Machinery was concentrating on the pickup mechanism, which was different again from the other two machines. It consisted of two rotating discs about three feet in diameter, which rotated in toward the center. The back edge of the disc was about three inches higher than the front. Rubber hose fingers about 12 inches long and about three inches above the disc rotated with the disc and pushed loose fruit onto the disc for pickup.

In cooperation with Purdue, FMC has developed some experimental designs, one of which is now undergoing tests. Chisholm-Ryder will build three experimental machines for 1960 trials. One will be located in Canada, one on the West Coast, and one in the East.

Changes are, of course, being incorporated in these experimental machines being built even now. Considerable work needs yet to be done to separate the fruit from the trash mechanically, and the acceptable fruit from the unacceptable. No possibility is being overlooked here, including separation by specific gravity, and by an electronic sorter triggered by fruit color. Meanwhile, provision for manual separation is provided for on a platform of the trailer.

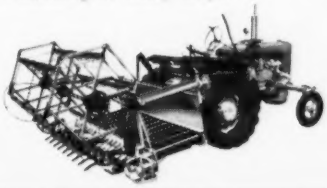
Another problem which is receiving the attention of a great many people, is that of a bulk handling system to accomodate 10 to 20 tons of fruit per acre. Shallow bulk boxes with forklift facilities is one suggested means. Only last week Dr. Amihud Kramer and Mr. F. C. Cooler of the University of Maryland, reported on a suggested method, which would transport the harvested tomatoes in a tank of water, using a tank truck. Water hauling, they say, will protect the fruit from damage, thus helping to insure the arrival of high quality at the factory.

VARIETIES

The requirements of a variety for mechanical harvest, as mentioned before, are determinate or dwarf vine type, concentrated fruit set, and good processing quality, including characters for firmness and stemlessness. In addition, there will be a need for early varieties, so that the harvest can be distributed more uniformly for the processing plant. Chemicals will also be used to increase the concentration of fruit set. Two of these were tested at the Michigan trials this past year with good results. The varieties tested at Michigan State and reported by Ries and Stout, as showing the most promise for mechanical harvest, are Fireball, Purdue 58 (Epoch), Maryland 314-1-1-1 and Libby, McNeill & Libby C-52.

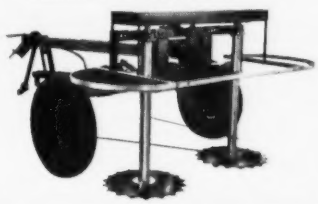
The best results of the season were obtained in a commercial field contracted by Libby, McNeill & Libby of Chatham, Ontario. Approximately 19 tons per acre of grade one fruit were harvested mechanically in a field of variety C-52 that yielded about 25 tons per acre of ripe grade one fruit in a single hand harvest. The variety was developed by R. J. Hall of Libby,

TRACTOR-ROWERS: Cut and windrow. Heavy duty design for fast, efficient handling of heavy crops.



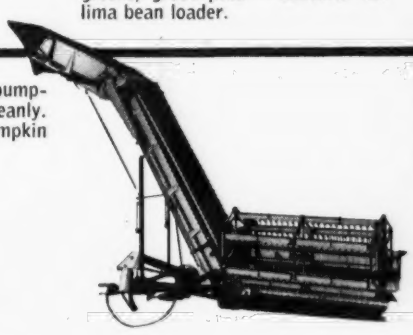
GREEN CROP LOADERS: Fast, dependable loading even under severe crop and weather conditions.

LIMA BEAN CUTTER: Cuts two rows at once, placing in single windrow. Cuts below crown, reducing pod damage. Harvests cleaner, with minimum of roots, dirt.



CUT-LODE HARVESTERS: For once-over harvesting of spinach, greens, green peas — converts to lima bean loader.

PUMPKIN LOADER: Loads pumpkins of varied sizes gently, cleanly. Also available: Hume pumpkin windrower.



PEAS?
PUMPKINS?
SPINACH?
LIMA BEANS?

HARVEST THEM BETTER WITH HUME

H. D. HUME COMPANY
Mendota 13, Illinois
BRANCHES: Hume Products Corporation
Mechanicsburg, Penna. Beaver Dam, Wisconsin

McNeill & Libby of Canada in Chatham, Ontario.

The culture of varieties for mechanical harvest will change due to the use of determinate varieties and once-over harvest. Plants will be spaced even closer together in and between rows. It might even prove practical to have dual rows that can be harvested at the same time. Good growing practices and high yields will be even more important than now, due to the increased investment in harvesting equipment and necessity for efficient use of this machinery.

An estimate of Michigan State University's Stout and Ries in their report on 1959 tests recently issued, is that with their present type of machinery, it will take about 4½ hours to harvest one acre, yielding 12 tons. With a crew of four men, one on the tractor, one handling fruit and two grading, the cost of labor should be about $22.50 per acre, with an additional cost of $3.00 for the tractor, gas and oil, and $15 per acre for depreciation of the machine. This is equal to a cost of $3.40 per ton for mechanical harvest vs. the $7.25 a ton now spent for harvest, which of course, does not include the cost of labor procurement of housing. The depreciation is based on the machine costing $3,000 and depreciated over a period of five years, and figuring a harvest of 40 acres per year.

FRUITS

Cherry pickers often receive up to half of the total gross returns which the fruit brings to the grower. The cost of harvesting blueberries amounts to over 40 percent of gross returns, and usually exceeds the combined total of all other items of production expense. These fruits are usually picked by migrant workers, a type of labor that is not only often hard to recruit, but which invariably presents housing and management problems that try the most patient men.

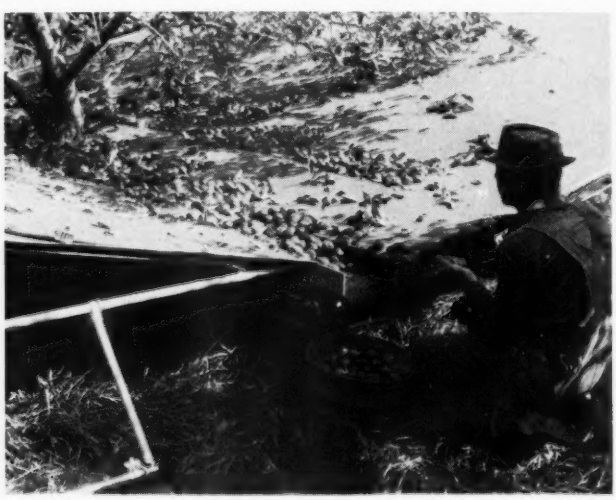
Both cherries and blueberries are important fruits in the State of Michigan. Taking their cue from the West Coast where practical methods of mechanizing the harvest of nut crops and prunes have been developed, agricultural engineers at Michigan State University, Cornell University, and the U. S. Department of Agriculture, have, after several years of research, determined that these and other fruits can be harvested mechanically, at considerable saving and with no noticeable loss of quality.

Studies on small tree fruits, particularly cherries, started back in 1956 in Michigan. A variety of hand and pole shaking methods were tried. These included the hand shaking of limbs of various sizes, the use of hand held pole shakers with various types of hooks at the end, and short lengths of rubber hose used to strike the branches. Berries were separated from the tree by these methods but the work was exhausting. During the 1957 season several types of mechanical shakers, activated by compressed air were tried, but none proved satisfactory. In 1958 a tractor-mounted hydraulicly activated boom shaker, manufactured by Gould Brothers, Inc. at San Jose, California, proved quite satisfactory, and further trials using thi equipment were conducted during th 1959 season both in Michigan an New York State. Indeed, in 1959 ove 150,000 pounds of red cherries wer harvested mechanically in six Michi gan orchards.

As shown by the photo on the cove of this issue, the Shaker is mounte on a tractor, the oscillating or shakin motion, comes from a hydraulicall driven cam. Several types of catchin frames have been used. That shown on the cover as used in New State State, consisted of a thirty inch wide hand crank conveyor and two large deflector frames, covered with a vinyl-coated nylon of two different types. These two deflectors rested on the edge of the conveyor and had adjustable legs near the outer corners, so that they could be raised or lowered, depending on tree and terrain conditions. The cherries fell on the deflectors, rolled by gravity onto the conveyor, and were cranked off one end into lugs. The overall dimensions of the catching frame were 20 x 20 feet. The frame made of welded steel tube was mounted on four steerable 16 inch pneumatic tires.

The Mechanical shaker brings down leaves, twigs, and other foreign material, as well as cherries. This trash can be picked out on sorting tables, blown out with an air blast if hauled in lugs, or if hauled in water, as recommended, it twill float and could be removed with existing facilities at the processing plant.

With red tart cherries, as high as 96 percent of the fruit on the tree was harvested with the boom shaker, with no noticeable increase in bruising, as compared with hand picked fruit. Up to 80 percent of sweet cherries were



Inclined plane collecting units being used in harvesting plums. The same equipment can be used in harvesting sweet cherries, tart cherries and plums. A modification of the equipment may prove useful in harvesting still other crops.

A mechanical vibrator (in the worker's right hand) used in harvesting blueberries. The mobile gasoline powered electric generator which appears in the right foreground supplies the current which activates the vibrator. When this unit is held against the fruit bearing canes, the mature berries separate from the plant and fall into the fruit collecting units which have been placed under the bushes.

separated from the tree in Michigan during the 1958 season. However, many of the sweet cherries grown in Michigan are made into maraschinos and these must be picked before the cherry has developed deep red color. At this stage they are hard to separate by shaking. Shaking approximately seven days before fresh market maturity separated less than 75 percent of the fruit. The results led to the conclusion that unless an effective chemical aid can be developed, and considerable work on this possibility was done in the 1959 season, this equipment could not be used to advantage in harvesting this variety of cherry at the stage of maturity desired by the maraschino packer.

The Tree Shaker was tried on such other fruits as Stanley prune plums in Michigan, and results were quite satisfactory. Tried on damson plums, however, in the 1958 season, the operation was judged to be impractical because on this variety many fruit spurs came off with the plums. Bruising was serious in harvesting pears. However, in New York State, some success was obtained in harvesting the hardier varieties such as seckel.

Time studies at Michigan showed that under favorable conditions it would be possible for a four-man team to harvest from 1200 to 1500 pounds of cherries per hour. At $1.50 per hour this would amount to ½¢ per pound. The equipment costs approximately $2,000, and if depreciated over a four-year period, would cost the grower who used them in harvesting 50 tons of cherries, about ½¢ per pound. The total cost of 1¢ per pound compares favorable to the 2½¢ which growers often pay for hand picking.

The work at Michigan on these tree fruits and on the Blueberry Harvester, has been conducted by Harold P. Gaston of the Department of Horticulture, Michigan State University, and by J. H. Levin and S. L. Hedden, agricultural engineers, USDA. At New York the research has been carried on by Richard W. Guest, assistant professor, and Everett D. Markwardt, associate professor, Department of Agricultural Engineering, Cornell University; by Richard L. LaBelle, assistant professor, Food Science and Technology, New York State College of Agriculture Experiment Station at Geneva; and by O. C. French, head New York Department of Agriculture Engineering, Cornell University.

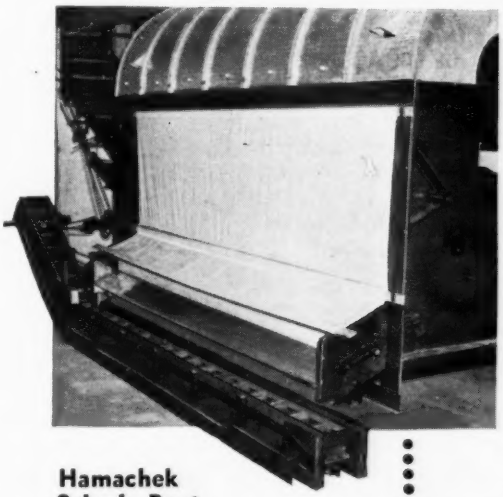
The group at New York has only this week released the progress report on 1959 activities with red, tart cherries. The Michigan report entitled "Mechanizing the Harvest of Red, Tart Cherries" will be made available early in April. Progress reports of earlier seasons are available.

BLUEBERRIES

The blueberry story has been told, not only in this publication, but in many others as well. As with cherries, several methods for separating the berries from the vines were tried with varying degrees of success, but the mechanical vibrator used in conjunction with the two-bush collecting unit, proved most successful. The "head" of a commercially manufactured electric hoe was converted for this purpose. This unit moved rubber covered "fingers" through an amplitude of ⅛ of an inch at the rate of 800 cycles per minute. When the vibrating fingers were held against fruit bearing stems, the mature berries separated quickly and completely.

A gasoline powered generator is used as the source of electric current. In the hands of four capable pickers a unit of this kind will enable them to separate 25,000 pounds of blueberries during a 30 day harvest season. The per pound cost of picking is estimated at 3½¢ compared with 8¢ for hand picking.

(*Continued on page* 25)



Hamachek
8-Inch Boot
Pea Conveyor

QUESTION:

What's In It For You?

ANSWER: Reduced labor costs and improved quality due to faster mechanical handling of peas. When it is not necessary to separately collect the product from each viner or pair of viners, Hamachek can furnish viner station conveyor systems to convey, clean, and collect all peas and beans at a central point without manual handling.

Hamachek-engineered chaff and threshed vine conveyors will also reduce labor by eliminating practically all station clean-up.

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PEA AND BEAN HULLING SPECIALISTS

Frozen Food Convention Program

The program for the 19th Annual Convention of the National Association of Frozen Food Packers to be held at the Conrad Hilton Hotel, Chicago, Illinois, March 6 to 10, includes many important matters of interest to frozen food people, and will include the following:

SATURDAY, MARCH 5

There will be an all-day meeting of the Frozen Potato Products Institute with a break at noon for luncheon. The Scientific Research Committee will also have an all-day meeting beginning at 10 A.M. and ending at 5 P.M. Public Relations Committee will meet from 3 to 5 P.M.

SUNDAY, MARCH 6

There will be meetings of the Convention Committee, Traffic Committee, Fruit and Vegetable Committee in the morning, and a Board of Directors Meeting beginning at 11 A.M. thru 4 P.M.

In the afternoon, from 2 to 5 P.M., the Fruit and Vegetable Committee will meet with U. S. Department of Agriculture officials to consider recommendations on USDA Grade Standards.

From 4 to 5:30 P.M. there will be a special preview of exhibits and an exhibitors reception.

The President's Reception and Cocktail Party will be from 6 to 7 o'clock.

MONDAY, MARCH 7

General Session 9 to 10:30 A.M. when a panel will discuss the economic future of frozen foods.

Representatives of the nation's motor carrier industry will meet with the Association's Traffic Committee to discuss problems and the future of motor transportation from 10:45 A.M. to 12 noon.

From 10:45 until noon there will be another meeting of the membership to discuss existing and pending legislation on the packing and commercial handling of frozen foods. This will be a closed meeting for members only.

At 12:30 P.M. there will be an all-industry luncheon, when Captain William G. Mott, U. S. Navy, Office of the Chief Advocate General, will be the keynote speaker and take as his subject "World Events: A Ringside Seat."

The Association's Traffic Committee will meet with representatives of the railroads from 2:30 to 5 P.M. to discuss frozen food progress and problems.

At 4 P.M. there will be a special tour of the frozen food displays for home economists and food editors.

TUESDAY, MARCH 8

There will be the Annual Meeting and Breakfast, beginning at 8 A.M., presided over by Harold J. Humphrey, Association President.

The Warehousing Committee will meet at 9 o'clock and the General Session will follow at 10:30 A.M.

The afternoon will be given up to a meeting of the Frozen Pea Packers Research Council, a discussion of problems and progress in frozen food warehousing, and a meeting on microbiology.

At 7 P.M. the Grand Banquet of the Frozen Food Industry is scheduled, when new officers and directors will be introduced.

The National Canners Association entertained delegates to the Youthpower Congress of the National Food Conference with a breakfast on the opening day of the February 11-13 Congress, in Chicago. In the group are both youth and adult delegates most of them involved in the annual Canning Crops Contest conducted by N.C.A. through the National Junior Vegetable Growers Association.

Front row (left to right)—Nelson H. Budd, Director of Information, National Canners Association, Washington, D. C.; Dr. Edwin A. Crosby, Assistant Director, Raw Products Research Bureau, National Canners Association, Washington, D. C.; Charles B. Shuman, President, American Farm Bureau Federation, Chicago, Ill., and general chairman of the Youthpower Congress; Patty Carlson, 17, Austin, Minn., home economics student, sponsored by George A. Hormel & Company; Pamela Brandenhoff, 17, Fairmont, Minn., home economics student, sponsored by George A. Hormel & Company; William E. Hayes, Produce Manager, Gerber Products Company, Fremont, Mich.

Second row (left to right)—Ronald L. Schafer, 17, Kokomo, Ind., who tied with his 15-year old brother Roger for the Indiana State championship of the Canning Crops Contest, tomato grower for Libby, McNeill & Libby; Thomas Church, 17, Holton, Mich., the Michigan State champion of the Canning Crops Contest, squash and apple grower for Gerber Products Company; John Kruepke, 15, Jackson, Wis., the Wisconsin State champion of the Canning Crops Contest, beet grower for Libby, McNeill & Libby; John Whitlock, Manager of Community Participation, Gerber Products Company, Fremont, Mich.

Back row (left to right)—Phillip Short, 16, Stryker, Ohio, an Ohio Canners and Food Processors Association's Top Ten Club winner, tomato grower for Campbell Soup Company; Jerry Wyse, 16, Stryker, Ohio, an Ohio Canners and Food Processors Association's Top Ten Club winner, tomato grower for Campbell Soup Company; Joseph Comerford, 17, Bunker Hill, Ind., winner of a $10 award from the Indiana Canners Association in the tomato production trials, tomato grower for Campbell Soup Company; Jean Schoonover, Dudley-Anderson-Yutzy, New York, N. Y., public relations agency for the N.C.A. Consumer and Trade Relations program; Walter H. Schilbe, Charge of Produce Procurement for Eastern Division, Libby, McNeill & Libby, Chicago, Ill.

General weather conditions at the time delayed the arrival of other canning industry delegates, who would have otherwise been in this picture.

WEDNESDAY, MARCH 9

General Session and panel discussion on "frozen foods place in the institutional field" in the morning, with the special session following on the subject "The Effects of Additives in the Frozen Food Industry," with the Honorable Arthur S. Fleming, Secretary of the U. S. Department of Health, Education and Welfare, the principle speaker.

In the afternoon there will be a symposium on additive-free frozen foods, and a meeting of the Traffic Committee with the Transcontinental Freight Bureau.

THURSDAY, MARCH 10

There will be an all-day meeting of the Board of Directors.

TRI-STATE PROGRAM

The Annual Spring Meeting of the Tri-State Packers Association will be held this year at the Dupont Hotel, Wilmington, Delaware, Monday and Tuesday, March 14 and 15. In addition to the sales program, which has always had fine acceptance of the membership, there will be two special programs of great importance to both processors and their growers.

Opening the meeting on Monday at 10:30 A. M., Matt Triggs of the American Farm Bureau Federation, will explain the objectives of the Bureau's plans for the promotion of local, state, and regional bargaining groups of growers across the nation. Mr. Triggs will also review the outlook for Federal regulation of migratory labor at this meeting.

At the General Meeting following luncheon, Ted Shamme, Editor of the "Grocer Graphic" and the "Yankee Grocer" will speak in the interest of keeping independent firms in the food retailing, distribution, and manufacturing industries. Following this talk a panel of experts in all phases of the food business will take up the theme of the sales meeting which is "Hats Off to the Past—Coats Off to the Future" in recognition of the 150 years of history of the canning and can making industries, and the challenges of the future.

In the evening the Society of Tri-State Packers will have their party in the Ballroom of the Dupont Hotel.

On Tuesday morning, March 15, there will be a meeting important to processors and their growers on the subjects of pesticide regulations, residue tolerances, and food additives and regulations, which will be discussed by a group of experts from the National Canners Association.

The Board of Directors will have its luncheon meeting at noon.

LENTEN SEASON SELECTED BY MUSHROOM CANNERS AS IDEAL PROMOTION PERIOD

"Dress Up Your Lenten Meals With Mushrooms" is the theme of the Mushroom Canners' League canned mushroom merchandising activity during the Lenten Season. Brilliantly colored point-of-purchase materials—a shopping cart card and a banner which fits around the cart—tell shoppers that if they want to make meals tastier . . . use Canned Mushrooms.

The period from March 2 to April 17, when meatless meals will be dominating menus throughout the country, is a perfect time for the Mushroom Canners' League to stimulate regular users of Mushrooms to a greater use of their product: it also provides an excellent opportunity for the canners to gain a whole new set of users.

In addition to the use of point-of-purchase materials, a simple, single-fold recipe leaflet will be made available at the grocery shelf where canned Mushrooms are stocked, and a more elaborate recipe folder will be given a wide distribution to and through the nations' food editors, including notably, those associated with newspapers—as well as those who conduct radio and television shows.

A special recipe and a photograph of a Mushroom Mystery Scallop, developed by the Home Economics staff of the American Can Company, will be mailed to editors who write food columns for America's newspapers.

A number of studies have proven that canned Mushrooms move extremely well when given special display treatment. It is expected that this Lenten merchandising effort of the Mushroom Canners' League, 25 N. Duke Street, York, Pennsylvania, will have a tremendous effect on the sale of canned Mushrooms during the six weeks prior to Easter.

SERVICE Monitor QUALITY
REGISTERED TRADE-MARK

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APPLES — CHERRIES — BERRIES — ETC.

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AND MANY MORE

HUNTLEY MANUFACTURING CO.
BROCTON, NEW YORK

NEWS *and Announcements*

Indiana Canners Association has tentatively set the dates of April 6 and 7 for its Spring Meeting to be held at Purdue University in Lafayette. The Fowler Hotel will be headquarters with the Technical Conference being held at the Purdue Union Building.

Trappey Contest Winner—Dick Irwin, a representative of Oliver Jones & Associates of Los Angeles, was the winer of a brand new Ford Galaxie Skyliner in the B. F. Trappey's Sons national Mexi-Pep sales contest for the company's sales representatives. The drawing climaxed a year long sales campaign for over 60 representatives of the New Iberia, Louisiana firm. Nine other winners were presented awards of portable barbecue sets, television sets, and complete outfits of fishing gear.

Karl Kiefer Machine Company (Cincinnati, Ohio) manufacturers of liquid and semi-liquid fillers, and aerosol equipment, has announced the appointment of Paul R. Fechheimer as president and executive officer, succeeding James A. Rheinstrom, who has been president for 29 years, and now becomes chairman of the Board. Harry C. Goeltz is vice president and Philip V. V. Hurlbut is sales manager of the firm.

Tri-Staters Elect—At a meeting of the Board of Governors of the Society of Tri-Staters in Baltimore last week, the following officers were elected: Dick O'Neill, American Can Company, President; Jack Harrison, J. T. Harrison & Associates, 1st Vice President; and Dave Johnson, Lord Mott Company, 2nd Vice President. The immediate past President, Ed Jones, becomes a member of the Board of Governors along with Steve Lewis, A. K. Robins & Company; Tom Shilling, Hampstead Packing Company; M. C. Berkeley, Berkeley Brokerage Company; and Jim Sterling, W. H. Roberts & Company. Ex-Officio members are Bud Shilling, President and Jack Rue, Executive Secretary of the Tri-State Packers Association. Frank Compton, Weyerhaeuser Company, continues as Secretary-Treasurer of the Society.

Ball Brothers Company (Muncie, Ind.) has purchased the Atlantic Zinc Works, Inc., and its subsidiary, Rolled Plate Metal Company of Brooklyn, New York. The Ball Company manufactures glass containers, decorative plastic, mechanical rubber goods, closures, and non-ferrous metal products. Atlantic Zinc and its subsidiary are the world's leading producers of photo engravers zinc alloys for the graphic arts industry.

Rosarita Mexican Foods, (Mesa Arizona)—President Robert L. Davenport has announced the following promotions to vice presidencies: Paul V. Langston, executive vice president; William Buchsbaum, production; Paul Rainbow, comptroller; Wiley Killian, canning division; Joe Crockett, frozen foods; George Powell, traffic; and Mel Hunt, purchasing. The firm is a manufacturer of Latin-American foods.

Larsen Company (Green Bay, Wis.)—Howard Brenneke, supervisor of the company's plant at Green Bay, has been made superintendent of the Hortonville plant. Dr. B. R. Suri, who has had much experience in research and quality control work, both in this country and abroad, has joined the Larsen research and development department.

Hoffmann-LaRoche has changed the Vitamin Division to the Fine Chemicals Division to more accurately described the function of the division. Originally the Vitamin Division was established to provide pure vitamins for pharmaceutical and food manufacturers. During the past several years the division has added a number of fine chemical specialties so that the new name is more appropriate.

LUCKY ANGLERS—When the Convention rush was over, Ed Woelper, National Can Corp. (r.) and Walter T. Onley, W. T. Onley Canning Company, decided to try their luck at Florida fishing. After three hours out with Captain William Ries, aboard his charter boat, "Aztec," they returned with one 58 inch Kingfish weighing 22 pounds, and two nice Dolphin. Not bad considering the convention weather experienced at Miami Beach last month.

Douglas C. Grant has been appointed director of advertising and public relations for the **U. S. Printing & Lithograph** Division of the Diamond National Corporation, and will be responsible for all advertising, public relations, and sales promotion functions of the firm. He will maintain offices in Cincinnati.

A Sesquicentennial Zippo Lighter, bearing the seal of the Sesquicentennial Year "Metal Cans—serving man for 150 years," was given to everyone in attendance at the Can Manufacturers Institute Board Meeting held during the NCA Convention. Further Sesquicentennial lighters will be sent to the more ardent workers among the 135 foreign groups in 37 different countries on the six continents who are so enthusiastically promoting the metal cans' 150 years of service to mankind.

Wayne P. Green, formerly with Simplicity Engineering Company, has become associated with **Leon C. Osborn Company, Inc.,** Harlingen, Texas, and will manage the Dallas office. The Osborn Company represents manufacturers of food processing and packaging equipment throughout the Southeast and Southwest.

FRANK LANGSENKAMP

FRANK LANGSENKAMP RECEIVES COVETED SCOUT AWARD

Frank S. Langsenkamp, president of the F. H. Langsenkamp Company of Indianapolis, received the Silver Beaver Award from the Central Indiana Counsel on January 20. The Silver Beaver is one of the most coveted awards in scouting, and is tendered only to those individuals who have contributed to the movement over many years, and far beyond the call of duty. In order to accept, it was necessary for Mr. Langsenkamp to leave the Miami Convention, fly back to Indianapolis, and return the next day to the convention.

During the past 14 years Mr. Langsenkamp has been a member of the District Camping and Activities Committee, a member of the Council Camping and Activities Committee, and of the Camp Kiwinis Development Committee. He has been chairman of the Northern District, served on the Board of Directors of the Central Indiana Council, a member of the District Study Committee, National Council Representative, a vice president of the Council, and the chairman of the Council Finance Committee, chairman of the Council Activities Committee, and currently a member of the Board of Directors.

In the industry he serves, Langsenkamp equipment, is a by-word for quality equipment. Frank has completed a term as a member of the Board of Directors of the Canning Machinery & Supplies Association. He has just stepped down from the presidency of the Forty-Niners, and is an active member of the Old Guard Steering Committee. He is active in church and community organizations.

Tuc
CORN CANNING EQUIPMENT
For Canning Fanciest Cremogenized and Whole Kernel Corns:
HUSKERS, CUTTERS, SILKERS, FLOTATION WASHERS, ROD-SHAKERS, TRIMMERS, CAN SHAKERS, CREMAKERS, MACERATORS, SANITARY MIXERS, SUCCULOMETERS, CORN METERS, AND ACCESSORY EQUIPMENT.
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MARKET NEWS

NEW YORK MARKET

Good Demand for Vegetable Staples—All Items Strong—Interest in Fruits Largely Routine, Citrus the Exception—Strong Market for Fish as Lent Approaches

By "New York Stater"

NEW YORK, Feb. 26, 1960

THE SITUATION.—A fair amount of business developed during the holiday-shortened week, with interest centering mainly in standard and extra standard canned vegetables, which continue to move toward firmer ground. Tomatoes are coming in for considerable attention, and corn and green beans are also in demand, with peas likewise beginning to move in better volume. Canned fish activity is on the upgrade, but aside from citrus, interest in canned fruits is largely of routine proportions.

THE OUTLOOK.—Distributors are beginning to show more concern over filling needs for the second quarter, and more interest is developing in items in relatively short supply where new pack supplies are still some months distant. Buyers generally are inclined to endeavor to make bookings for deferred delivery, however, rather than move goods into warehouse before they are actually needed.

TOMATOES.—The market for tomatoes in the east is steady to strong, with tri-state canners listing 303s at $1.40 and 2½s at $2.15, with 10s at $7.25 or better. On extra standards, 303s are now generally held at $1.50, with 2½s at $2.30 and 10s at $7.75. Offerings from Florida continue on the short side, with prices about in line with tri-state values, although 1s and 303s can be bought in some instances at 2½ to 5 cents per dozen below tri-state levels.

BEANS.—Continued strength is reported in green beans, with canners now holding standard round pod cut bean 303s at $1.20-$1.25 at tri-state packing centers, with extra standards at $1.25-$1.30. Fancy French style 303s are held at $1.50-$1.55, with extra standards at $1.35-$1.37½, all f.o.b. canneries. Many canners are cleared of carryover holdings of limas, and the market continues strong, with fancy tiny all-green 303s at 2.50-$2.60, with small at $2.00. Extra standard mixed green and white 303s are held at $1.35-$1.40, where available.

SPINACH.—A pick-up in demand for fancy spinch is reported in the east, with Maryland canners quoting the market firm at $1.40 for 303s, $2.00 for 2½s, and $6.50-$6.75 for 10s, f.o.b.

OTHER VEGETABLES.—A little inquiry is reported in sweet potatoes, with fancy 303s in syrup held at $1.25, with squat 3s at $2.00 for fancy whole in syrup . . . New York State canners are reported closely sold up on beets and carrots, and prices are stiffening. . . . Peas are showing a firmer tone, but buyers are still shopping the market thoroughly . . . An advancing trend is still evident in corn. Tri-state packers are unwilling to part with standard below $1.20 in many instances, with fancy held at $1.35, while New York State canners hold standards at $1.15 and fancy at $1.30.

CITRUS.—Reports from Florida note continued firmness in canned citrus, and distributor demand is reported fairly brisk—particularly for natural juices. No further price changes have developed, but traders are looking for a higher basis before the season is ended. Meanwhile, distributors are closely studying the possible competitive impact later on in the season of record holdings of frozen orange concentrate. Any significant easing in the price structure for the frozen product, experience has taught, can have immediate repercussions on the sale of the canned single strength product.

PEACHES.—Reflecting a let-down in replacement buying of peaches, California canners are endeavoring to step up sales, and a national packer during the week cut prices on choice 2½s, both clings and frees, by 5 cents per dozen to $2.45 and $2.70, respectively. Distributors, who bought heavily earlier in the season, are working against inventories, rather than coming into the market for additional supplies, and in view of the favorable supply condition on the West Coast are inclined to buy only as needed, in the hope of bringing out further price concessions.

OTHER FRUITS.—Apple sauce has come under a little pressure in some quarters, with fancy 303s quoted as low as $1.27½ in some areas, although canners generally are holding at a minimum of $1.30. . . A rising market for the frozen product and a growing supply shortage is bringing new strength into the market for blueberries, with New Jersey packers holding fancy 300s in syrup at $2.95, with 10s at $16.50 and upwards. . . A steady market is reported in red sour pitted cherries, particularly in 10s, although new buying remains rather routine.

SALMON.—Seattle reports note a growing tightness in supplies of salmon, with a resulting strong market. Canners are not pressing for sales, and in some instances, where brand franchises are involved, are endeavoring to parcel out holdings in a manner that will insure a reasonable degree of continuing of supply for their regular outlets.

OTHER CANNED FISH.—The approach of Lent has brought out a better demand for sardines for prompt shipment, and the market in Maine continues to show a steady undertone as canner carryover holdings dwindle. . . . More inquiry is coming into the market for both domestic and imported tuna, and the market is holding steady. . . The market for canned lobster and crabmeat is largely nominal, owing to short supplies, and canned shrimp prices continue to stiffen as offerings become less frequent.

CHICAGO MARKET

Fast Pace Tapers Off—Beans Tight—Tomatoes Strong—Other Vegetables in Good Position—Still a Seller's Market All the Way—West Coast Fruits Routine.

By "Midwest"

CHICAGO, ILL., February 25, 1960

THE SITUATION.—Trading in the Chicago market has tapered off considerably from the fast pace so evident for the past month or two. Distributors had been faced with increases on so many major canned food items that they had difficulty covering as they would like. All of them have some kind of limitation on financing or if not that, certainly warehouse space will draw a line somewhere. Now it seems there is at least a temporary lull in the upward trend of prices and the average buyer is thankful for the opportunity for the breathing spell. Tomatoes and beans have led the parade and distributors are either well stocked where these items are concerned or they have been left at the post. Furthermore, it seems quite obvious there will be additional increases before long and both items are being watched carefully. Citrus is another item that has had a lot of attention and the trade here have purchased heavily. However, the movement has been and still is excellent which means the trade will be back in the market regardless of recent purchases and current higher prices. Almost every warehouse here is well stocked with lower grades of corn, #10 tins of tomato products, canned dry beans and kraut as this is where the sharpest increases have taken place. Nevertheless, this doesn't mean a protracted dry spell of buying as all the above appear to be moving exceptionally well and what may have appeared to be forward buying may not turn out to be much more than normal requirements. As a result, outside of the usual few exceptions, it is still a sellers market all the way.

BEANS.—Here is where the real action has taken place as buyers have had little doubt about recent price increases being legitimate. Every buyer has tried to cover on all grades of beans, particularly where cheap cut green beans are concerned. Standard 303 cuts have been selling here at the retail level for 10¢ which is now impossible based on current costs. The trade have realized this basic fact and really dried up all possible sources of supply in their efforts to cover ahead. Even southern sources, where buyers here usually look for their requirements of lower grades, have pushed prices up to $1.20 and in some cases to $1.25. It's a real tight market.

TOMATOES.—A situation that is very similar to that which exists on beans. Prices are advancing and distributors have been buying as they appear convinced the market will move only one way between now and new pack. Standard 303s are tough to find at $1.40 as most canners are now inclined to hold at $1.45. Extra standards are no worse than $1.50 and up depending on the quality involved. Fancy whole tomatoes are just about non-existent. A strong market in all producing areas.

TOMATO PRODUCTS.—Many California canners are no longer offering #10 tomato products on the open market. They are so well sold they are confining shipments to those buyers with pre-season commitments. Prices are strong under such circumstances and should continue that way until new pack. Fancy catsup is usu-

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Ideal for canners, frozen food processors, bakers, or any users of liquid or semi-paste product . . . for any product that will drain through a 4" opening. Provides cleaner, more efficient handling—no loss due to spilling or splashing of product. Equipped with stainless steel underpan 60" x 20" x 15" wide, ¾ hp motor, 806 lbs. net weight, pump optional.

The "101" Automatic Can Opener is one of a complete line of Langsenkamp machines for food processors which also includes manually-operated can openers and automatic can crushers. Write for full details.

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ally held at $9.50 with extra standard at $8.50 and standard at $7.50. Fancy 1.045 puree is listed at $6.00 with 1.06 at $7.00 and 1.07 at $8.00. Paste is the tightest item and prices are firm at $10.75 for 26% and $12.65 for 30%. There is a lot more demand than there is paste at the moment.

KRAUT.—Most Chicago buyers felt they had covered ahead on kraut but many of them are already back in the market which is a good indication of how kraut is moving. Unsold stocks are getting very tight and many canners are off the market except in the case of old established customers which comes as a shock to a few local buyers. The trade are not quarreling about current prices of $6.40 for fancy tens, $1.90 for 2½s and $1.37½ for 303s.

CORN.—A strong and steady market but still not at the price level many experts had predicted some time ago. Fancy whole kernel is quoted at $1.35 to $1.40 for 303s and $8.00 to $8.25 for tens with cream style at just about the same levels. There is a very heavy demand here for lower grades of whole kernel in 303s but the cheapest item available today is $1.25 and that is in very short supply. Standard cream style is selling at a bottom of $1.10 and should go higher.

PEAS.—The special deals on the part of the advertised brands are gone but not forgotten as distributors here bought heavily. However, peas now cost more money and standard 303s appear on a solid foundation of $1.10. Fancy ungraded sweets, on the other hand, can still be had at $1.25 and that puts a little squeeze on extra standards. There are still some bargains kicking around on #10 peas, particularly in the lower grades, but this condition should adjust itself shortly as the industry is not over burdened with tens.

CITRUS.—The movement of citrus continues at a much better than normal pace, not only locally but apparently nation wide as well. Florida canners report sales of over 1,250,000 cases during the last reporting week and this is not hay. Now there will be a short lull in packing until the new crop of Valencias are available in volume which will further deplete stocks in first hands. The surprising fact about citrus has been the excellent movement to date. Buyers who felt they were well covered for some time are now watching the market carefully as any indication of additional price increases will bring them back in the market in a hurry.

PACIFIC COAST FRUITS.—The canned fruit market has simmered down to nothing more than a routine situation. A buyer might experience some difficulty locating the count he needs in #10 Cling peaches or Northwest pears but generally he can cover close to his requirements. He can still find some pear bargains in California and there is more and more doubt in his mind all the time about the ability of Northwest pear canners to hold the line at current lists. No one as yet has announced officially lower prices but the rumors in this respect are getting thicker all the time. Cocktail canners are having no problems as they are moving goods and moving them at their asking prices. Apricots, sweet cherries and prune plums are all holding firm and should because stocks are short.

CALIFORNIA MARKET

Tomatoes and Tomato Products Maintain Strong Position—Increased Buying Interest in Low Priced Freestone Peaches

By "Golden Stater"

SAN FRANCISCO, February 25, 1960

THE SITUATION.—With firm prices and many advanced prices on tomatoes and tomato products, canners are receiving heavy shipping instructions against contract at prior levels to be shipped before new prices go into effect about March 1. Additional heavy inter-canner purchases on tomato puree and tomato paste even at higher prices than last week. Bargain prices on freestone peaches attracting trade, who figure bottom has been reached. Wide range of quotations explained in part by range of quality. Trading on pears continues to move this item in good volume. Cling peaches and fruit cocktail movement continues at fairly stable prices.

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THE OUTLOOK.—The Canners League of California 1959 pack summary shows why many tomato products have advanced and will remain strong between now and new pack six months ahead. Also shows strength in peeled tomatoes which should continue on firm price basis. Tomato juice 1959 pack 10.9 million cases vs. 13.8 in 1958; tomato puree 1.8 million cases (1959), 2.3 million (1958); tomato paste 6.1 million coses (1959), 8.2 million (1958); catsup 11.2 million cases (1959), 13.8 million cases (1958); tomato sauce 8.1 million cases (1959), 10.3 million (1958). Peeled tomatoes 9.5 million cases (1959), 12.7 million (1958) with greatest reduction in 303 can size. Fall down in other districts gives additional strength to California supply.

VEGETABLES.—With spring pack spinach approaching, California will be well sold on 8 oz. and #10. but 303's and 2½'s still in good supply. Asparagus, on the other hand, should clean up well in all sizes and both styles. Green tipped and white pack was down from 2.8 million cases in 1958 to 1.9 million in 1959, while the 400,000 case larger all green pack (1.3 million in 1958 and 1.7 million in 1959), has sold well due to Midwest shortages.

ELBERTAS.—The large freestone peach pack has a long way to go. Last fall movement was hampered by low, attractive cling peaches. Prices gradually worked down to today's lows, which are now attracting buying interest. Variable qualities within each grade have brought out variable pricing. Canners hurt but low pricing will be difficult to move up in the near future.

CLINGS.—Cling peaches in first 7 months moved out a record 14.2 million cases against past 5 or 6 year average of 10.8 million. If normal movement in last half of pack year prices should hold steady.

COCKTAIL.—Fruit cocktail moved in same period 6.9 million cases vs. 6.2 last year. Prices are holding steady and movement continues good.

PEARS.—Pears have moved well ahead of last year (3 million vs. 2.3 last year), but have been traded off in price without much fanfare.

APRICOTS.—Apricots way ahead of last year but pack then one of lowest on record. 1959 shows 3 million case movement against 6 million pack, whereas 1958 shows 1.5 million cases against 2.2 million case pack.

In all fruits, better than 30 million cases have moved out against a slightly better than 53 million case pack.

FREEZE IN FLORIDA

(U. S. Weather Bureau Report)

The following preliminary report was received from the Federal-State Frost Warning Service at Lakeland, Florida, concerning the low temperatures in Florida on February 20, 1960, and crop damage.

Minimum temperatures morning of February 20, 1960: In north 25 to 29 degrees, isolated 23 degrees; frost mostly light. Central 28 to 34 degrees, a few 25 to 27 degrees; frost mostly light. Everglades 36 to 40 degrees near lake, 31 to 35 degrees away from lake; scattered, light to moderate frost. Lower East Coast 38 to 43 degrees near coast, 36 to 39 degrees away from coast; scattered, light frost.

Preliminary Damage Report: Damage to citrus insignificant. Some local heating and wind machine operations in colder locations. Some additional damage to unprotected tender truck in north; however, most of such truck injured by freeze of February 15. An additional lowering of quality and volume of hardy truck. In central and everglades areas, some additional damage to tender truck; a few fields that had escaped 15th cold killed. Slight damage to hardy truck. No appreciable damage on lower east coast. Accumulative damage of frequent cold causing heavy losses, continuing to retard growth of vegetables, strawberries, and most other plants, and delaying production. High winds and blowing sand on 18th damaged vine crops, cucumbers, squash, and melons, and caused some damage to most other truck. Small amount of citrus blown from trees.

STOCKS AND SHIPMENTS

Compiled by National Canners Association Division of Statistics

CANNED SWEET CORN
(Actual Cases)

	1958-59	1959-60
Carryover, Aug. 1	5,179,645	2,662,751
Pack	32,078,437	40,160,497
Total Supply	37,258,082	42,823,248
Shipments during January	3,140,435	4,115,814
Shipments, Aug. 1 to Feb. 1	19,002,260	21,919,306
Stocks, Feb. 1	18,255,822	20,903,942

CANNED PEAS
(Actual Cases)

	1958-59	1959-60
Carryover, June 1	8,495,074	9,649,751
Pack	33,110,010	29,020,062
Total Supply	41,605,084	38,669,813
Shipments during January	3,404,434	2,912,648
Shipments, June 1 to Feb. 1	21,034,200	22,362,743
Stocks, Feb. 1	20,570,884	16,307,070

GOVERNMENT WANTS

Veterans Administration Supply Depot, P. O. Box 27, Hines, Ill., has asked for bids on the following requirements, to be opened on the dates stated:

CANNED FRUIT COCKTAIL (DIETETIC)—March 15, 1960

CANNED PEARS (DIETETIC)—March 15, 1960

CANNED CLING PEACHES (DIETETIC)—March 15, 1960

CANNED CORNED BEEF—March 7, 1960

Mechanical Harvesting

(Continued from page 17)

GRAPES

Grapes in California, the vinifera type having long peduncles, have been picked experimentally with greatly reduced hand-labor requirements and efficiency approaching hand harvest. The vines must be trained, however, so that the clusters of grapes hang uniformly underneath the wires holding them.

Concord grapes, grown in the Eastern United States, have cluster stems with short peduncles. Instead of clipping the bunches as is done in California, the vine of Concord grapes is shaken by an experimental machine so that berries are separated from the cluster stems. Concord grape harvesting by machine is being studied by Shaulis, Shepardson and Moyer at New York Agricultural Experiment Station, Geneva.

APPLES

Various studies on apple picking, and particularly at Michigan State University, indicate it is unlikely that apple picking will be completely mechanized in the near future, but that apple picking may be made easier and per-man production increased by the use of mechanical aids which would carry the weight of the harvested fruit and transfer it to the ground automatically.

CITRUS

A mechanical picker for harvesting citrus is being studied in Florida. "The picking spindle is in the form of an auger and the flights are made of rubber," according to a report in the Triangle. "The blades gently reach into the trees and remove the fruit from branches. The spindles then convey the fruit into the containers and as the spindle is withdrawn, the blades reverse to prevent any damage to the leaves and branches." Further tests and modifications are to follow.

●

General Foods Corporation—Hubert O. Ranger, laboratory director of the Plastics Coating Corporation, Holyoke, Massachusetts, will join General Foods on March 1 as director of the Packaging Laboratory at the General Foods Research Center in Tarrytown, New York.

Whatever your needs state them in the CLASSIFIED ADVERTISING pages of THE CANNING TRADE

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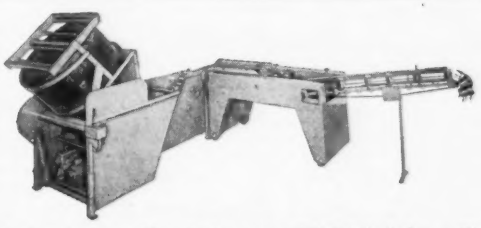

Automatically unload and unscramble all size cans, 202-404 inclusive, with this one-man-operated combination. Gentle handling of bright cans is its virtue. For complete information write or phone 190.

Ask about the NEW—Shuttleworth CASE-PACKER, too.

Designed by Canners for Canners.

SHUTTLEWORTH MACHINERY CORP.,
Warren, Indiana

—CANNED FOOD PRICES—

ASPARAGUS
Calif., Fcy., All Gr., No. 300
Colossal 3.40-3.50
Mammoth 3.40
Large 3.30
Med.-Small 3.20-3.25
Gr. Tip & Wh. Colossal.....3.00
Large 2.90
Med.-Small 2.90
Tri-St. Fcy., All Gr., No. 300
Colossal 3.50
Mammoth 3.45
Large 3.40
Mid-W., Fcy., All Gr., Cuts & Tips
No. 8 oz. .....——
No. 1 Pic. .....——
No. 300 .....2.15
No. 10 .....12.00-12.25

BEANS, Stringless, Green
East
Fcy., Fr. Style, 8 oz. 1.02½
No. 303 .....1.55
No. 10 .....8.50-8.75
Fcy., Cut, Gr., No. 303..1.40-1.50
No. 10 .....8.25-8.50
Ex. St., Cut Gr.,
No. 303 .....1.27½-1.36
No. 10 .....7.25-8.00
St., Cut, No. 303.....1.22½-1.25
No. 10 .....6.75-7.00
Wax, Fcy., Wh., 3 sv.,
No. 303 .....2.05
No. 10 .....11.00
Cut, 3 sv., No. 303 .....1.60
No. 10 .....8.75-9.00
Ex. St., Cut, No. 1.40
No. 10 .....7.25-8.00
St., Cut, No. 303 .....1.30
No. 10 .....6.75-7.00
Midwest
Gr., Wh., Fcy., No. 303..1.80-2.75
No. 10 .....11.00-12.00
Fcy., Cut, No. 303 .....1.40-1.45
No. 10 .....8.50-9.00
Ex. Std., No. 303 .....1.25-1.40
No. 10 .....7.75-8.50
Std., Cut, No. 303 ....1.12½-1.15
No. 10 .....6.50-7.00
Wax, Fcy., Cut, 3 sv.,
No. 303 .....1.45-1.60
No. 10 .....9.00-9.25
4 sv., No. 303 .....1.35-1.45
No. 10 .....8.25-8.75
Ex. Std., No. 303 .....1.25-1.45
No. 10 .....7.25-8.50
Std., No. 303 .....1.17½-1.20
No. 10 .....6.50-6.75
South
Fcy., Wh. Gr., No. 303.....1.75
No. 10 .....9.00
Fcy., Cut, Gr., No. 303..1.35-1.40
No. 10 .....8.50-8.75
Ex. Std., No. 303.....1.25-1.30
No. 10 .....7.00
Std., No. 303 .....1.20-1.25
No. 10 .....6.25
Blue Lakes
Fcy., Vert. 3 sv., No. 303....2.35
4 sv., No. 303 .....2.20
Fcy., Cut, 3 sv., No. 303...1.77½
No. 10 .....9.50
4 sv., No. 303 .....1.65
No. 10 .....9.15
Ex. St., 5 sv., No. 303.....1.45
No. 10 .....8.25
Std., No. 303 .....1.35
No. 10 .....7.25

BEANS, LIMA
East
Fcy., Tiny Gr., No. 303..2.50-2.60
No. 10 .....13.75-14.00
Small, No. 303 .....2.00-2.10
No. 10 .....12.25
Medium, No. 303 .....1.90
No. 10 .....11.00
Ex. Std., G.&W., No 303.....1.40
No. 10 .....9.50
Mid-West
Fcy., Tiny Gr., No. 303..2.25-2.50
No. 10 .....13.75-14.00
Small, No. 303 .....2.00-2.10
No. 10 .....12.00-12.25
Medium, No. 303 .....1.90
No. 10 .....11.00-11.50
Ex. Std., Gr. & W., No. 303 ...1.45
No. 10 .....9.50

BEETS
East, Fcy., Diced,
No. 303 .....1.05-1.10
Fcy., Sliced, No. 303 ....1.10-1.30
Midwest, Fcy., Sl., 8 oz. ....——
No. 303 .....1.10
No. 10 .....5.00-5.50
Diced, No. 303 ....1.00
No. 10 .....4.75

CARROTS
East, Fcy., Diced, No. 303 1.25
No. 10 .....6.50
Mid-West, Fancy, Diced,
No. 303 .....1.12½-1.15
No. 10 .....5.50-5.75
Sliced, No. 303 .....1.25
No. 10 .....6.75-7.00

CORN
East
W.K. & C.S. Golden
Fcy., No. 303 .....1.40-1.65
No. 10 .....8.50-8.75
Ex. Std., No. 303 .....1.25-1.50
No. 10 .....8.00-8.50
Std., No. 303 .....1.15-1.35
No. 10 .....7.50-7.75
Shoepeg, Fcy., No. 303 ..1.65-1.75
No. 10 .....9.50-10.00
Ex. Std., No. 303 .....1.60
Mid West
W.K., C.S., Gold., Fcy.,
No. 12 oz. 1.40-1.45
No. 303 .....1.35-1.40
No. 10 .....8.00-8.25
Ex. Std., No. 303 .....1.20-1.25
No. 10 .....7.75
Std., No. 303 .....1.10-1.25
No. 10 .....6.50-6.75
Co. Gent., W.K. & C.S.
Fcy., No. 303 .....1.50-1.60
No. 10 .....8.50-8.75
Ex. Std., No. 303 .....1.35-1.45
No. 10 .....8.00-8.25
Std., No. 303 .....——
No. 10 .....——

PEAS
East Alaskas
Fcy., 1 sv., 8 oz. 1.62½
1 sv., No. 303 .....2.50-2.60
2 sv., 8 oz. 1.27½
2 sv., No. 303 .....2.05
2 sv., No. 10 .....11.75
3 sv., No. 303 .....1.60-1.62½
3 sv., No. 10 .....9.00
Ex. Std., 2 sv., No. 303..1.40-1.50
No. 10 .....8.75
3 sv., No. 303 .....1.25-1.35
No. 10 .....8.00-8.25
4 sv., No. 303 .....1.20-1.25
No. 10 .....7.00-7.75
Std., 3 sv., No. 303 .....1.25
3 sv., No. 10 .....7.50
4 sv., No. 303 .....1.15
No. 10 .....6.25-6.50
Pod Run, No. 303 .....1.10
No. 10 .....——
East Sweets
Fcy., Pod Run, No. 303..1.35-1.40
No. 10 .....7.25
Ex. Std., No. 303 .....1.15-1.25
No. 10 .....7.00-7.25
Std., No. 303 .....1.10
No. 10 .....6.25
Midwest Alaskas
Fcy., 1 sv., 8 oz. 1.60-1.70
1 sv., No. 303 .....2.55-2.60
1 sv., No. 10 .....13.25-13.75
2 sv., No. 303 .....1.80-1.90
2 sv., No. 10 .....11.50-12.00
3 sv., No. 303 .....1.45
No. 10 .....8.00-8.50
Ex. Std., 3 sv., 8 oz. .... .85-.90
3 sv., No. 303 .....1.25-137½
3 sv., No. 10 .....7.50-7.75
4 sv., No. 303 .....1.17½-1.20
4 sv., No. 10 .....6.50-7.25
Std., 3 sv., 8 oz. ..... .80
3 sv., No. 303 .....1.17½-1.20
3 sv., No. 10 .....7.00-7.25
4 sv., 8 oz. ..... .75-.77½
4 sv., No. 303 .....1.10-1.15
4 sv., No. 10 .....6.25-6.50
Mid-West Sweets
Fcy., 3 sv., No. 303 ....1.45-1.50
No. 10 .....8.25
Fcy., 4 sv., No. 303....1.30-1.35
No. 10 .....7.50-7.75
Ungraded, No. 303 .....1.30-1.35
No. 10 .....7.50-7.75
Ex. Std., 3 sv., No. 303 1.25-1.37½
No. 10 .....7.50-7.75
4 sv., No. 303 ...1.17½-1.22½
No. 10 .....6.50-7.00
Ungraded, No. 303..1.17½-1.22½
No. 10 .....6.50-7.00
Std., Ung., No. 303....1.10-1.12½
No. 10 .....6.50-6.65

PUMPKIN
Midwest, Fcy., No. 2½..1.55-1.60
No. 10 .....5.50
East, Fcy., No. 2½.....1.65
No. 10 .....5.90-6.00

SAUERKRAUT
Midwest, Fcy., No. 303 ...1.37½
No. 2½ 1.90
No. 10 .....6.40
N. Y., Fcy., 2½ 2.00
No. 10 .....6.80

SPINACH
Tri-State, Fcy., No. 303.1.40-1.45
No. 2½ 2.00-2.10
No. 10 .....6.50-7.00
Ozark, Fcy., No. 303 .....1.20
No. 2½ 1.85
No. 10 .....5.50
Calif., Fcy., No. 303 1.17½-1.22½
No. 2½ 1.65-1.72½
No. 10 .....4.80-5.10

SWEET POTATOES
Tri-States, syr., No. 303.1.25-1.30
No. 3, Sq. 2.00-2.10
No. 2½ 2.40-2.50
No. 10 .....9.75-10.50

TOMATOES
Tri-States
Ex. Std., No. 303 .....1.50-1.55
No. 2½ 2.35-2.50
No. 10 .....7.75-8.25
Std., No. 1 .....1.05-1.10
No. 303 .....1.40
No. 2½ 2.15-2.25
No. 10 .....7.25-7.50
Fla. Std., No. 303 .....1.45
No. 2½ 2.15
No. 10 .....7.25
Mid-West, Fcy., No. 1 .....1.40
No. 303 .....1.85-2.10
No. 2½ 3.00-3.25
No. 10 .....9.50-9.75
Ex. Std., No. 1 .....1.15
No. 303 .....1.50-1.60
No. 2½ 2.45
No. 10 .....8.50-8.75
Std., No. 1 .....1.00
No. 303 .....1.40-1.45
No. 2½ 2.25
No. 10 .....7.75-8.00
Calif., Fcy., S.P., No. 303....1.75
No. 2½ 2.65
No. 10 .....9.50
Std., No. 303 .....1.35
No. 2½ 1.90
No. 10 .....6.75-7.00
Ozarks, Std., No. 303 .....1.35
No. 10 .....7.25
Texas, Std., No. 303 .....1.35
No. 10 .....7.25

TOMATO CATSUP
Calif., Fcy., 14 oz. 1.60-1.70
No. 10 .....9.25
Mid-West, Fcy., 14 oz...1.75-1.80
No. 10 .....9.50
East, Fcy., 14 oz....1.77½-1.87½
No. 10 .....11.00

TOMATO PASTE (Per Case)
Calif., Fcy., 96/6 oz. 7.20
No. 10 (per doz.) 26% ...11.60
No. 10 (per doz.) 30% ...12.85
Mid-West
No. 10 (per doz.) 26% 10.75

TOMATO PUREE
Calif., Fcy., 1.06, No. 303 ...1.50
No. 10 .....7.35
Mid-West, Fcy., 1.045,
No. 1 .....1.02½
No. 10 .....6.00-6.50
East, Fcy., 1.045, No. 1.....1.05
No. 10 .....7.00

FRUITS

APPLE SAUCE
East, Fcy., No. 303 .....1.30
No. 10 .....7.00-7.25
Std., No. 303 .....1.20
No. 10 .....——
Calif. (gravensteins)
Fcy., No. 303 .....1.60
No. 10 .....8.25-8.50
Choice, No. 303 .....1.25-1.30
No. 10 .....——

APPLES (East)
Sl., No. 10 .....8.00-8.25

APRICOTS
Halves, Fcy., No. 2½ 4.15
No. 10 .....13.90
Choice, No. 2½ 3.15-3.25
No. 10 .....12.10
Std., No. 2½ 2.70-2.80
No. 10 .....10.65-10.90
S.P. Pie, No. 10 .....12.00
Fcy., Wh. Peeled, No. 2½....4.15
No. 10 .....13.90

BLUEBERRIES
No. 300 H/S 2.85-2.95
No. 10, Water 16.50-16.85

CHERRIES
R.S.P., Water, No 303.....1.85
No. 10 .....11.00-11.50
R.A., Fcy., No. 2½.....5.85-6.00
No. 10 .....20.75
Choice, No. 2½ 5.75
No. 10 .....19.45

COCKTAIL
Fcy., No. 303 .....2.15
No. 2½ 3.35
No. 10 .....12.00-12.25
Choice, No. 303 .....2.15
No. 2½ 3.15-3.25
No. 10 .....11.85

GRAPEFRUIT SECTIONS
Fla., Fcy., No. 303....1.70-1.77½
Fcy., Citrus Salad,
No. 303 .....2.75

PEACHES
Calif., Cling Fcy., No. 303...1.85
No. 2½ 2.75
No. 10 .....10.00
Choice, No. 303 .....1.65-1.67½
No. 2½ 2.47½-2.52½
No. 10 .....9.25-9.50
Std., No. 303 .....1.50-1.60
No. 2½ 2.32½-2.35
No. 10 .....8.90
Elberta, Fcy., No. 2½ ..2.75-3.00
No. 10 .....11.25
Choice, No. 2½ 2.40-2.60
No. 10 .....10.35

PEARS
Fcy., No. 303 .....2.15-2.25
No. 2½ 3.50
No. 10 .....12.25
Choice, No. 303 .....2.05
No. 2½ 3.00-3.15
No. 10 .....11.00-11.25
Std., No. 303 .....1.85
No. 2½ 2.55-2.65
No. 10 .....10.00-10.25

PINEAPPLE—Per case
(Toll & Wfge. extra)
Hawaiian, Fcy., Sl., 24/2....6.95
24/2½ 8.05
6/10 .....7.50
Crushed, 24/2 .....5.60
24/2½ 7.00
6/10 .....5.95
Choice, Sl., 24/2 .....5.60
24/2½ 6.95
6/10 .....6.95
Std., Half Slices, 24/2 .....5.10
24/2½ 6.65
6/10 .....6.10

PLUMS, PURPLE
N.W., Fcy., No. 303 .....1.60
No. 2½ 2.30
No. 10 .....7.50
Choice, No. 303 .....1.50
No. 2½ 2.05
No. 10 .....7.00

JUICES

APPLE
Midwest, 1 qt. gl. 2.00-2.15
46 oz. tin 2.60-2.75

CITRUS BLENDED
Fla., No. 2 .....1.37½-1.42½
46 oz. 3.15

GRAPEFRUIT
Fla., No. 2 .....1.30-1.35
46 oz. 2.85-2.90

ORANGE
Fla., No. 2 .....1.40-1.55
46 oz. 3.60

PINEAPPLE—Per Case
Hawaiian, Fcy., 24/2 .....2.70
12/46 oz. 2.80

TOMATO
East, Fcy., No. 2 .....1.15-1.20
46 oz. 2.40-2.55
No. 10 .....——
Mid-West, Fcy., No. 2 .....1.20
46 oz. 2.40-2.45
Calif., Fcy., No. 2....1.15-1.17½
46 oz. 2.30-2.40
No. 10 .....4.50-4.80

FISH

SALMON—Per Case 48 Cans
Alaska, Red, No. 1T.....37.00
½'s 23.00-25.00
Med., Red, No. 1T 30.00
½'s 18.50
P.S. Sockeye, ½'s 24.00-25.00
Pink, Tall, No. 1 .....24.00-25.00
½'s 13.50
Chum, Tall, No. 1 .....22.00
½'s 12.00

SARDINES—Per Case
Calif., Ovals, 24/1's 4.00
Ovals, 48/1's 8.00
No. 1 T., Nat. .....——
Maine, ¼ Oil Keyless ..8.50-9.00
¼ Oil Key Carton .....——

SHRIMP-Dev. 4½ oz. per doz.
Jumbo 6.00
Large 5.50
Medium 4.90-5.00
Small 4.40-4.50
Broken 4.00

TUNA—Per Case
Fcy., White Meat, ½'s 14.50
Fcy., Light Meat, ½'s..10.25-10.75
Chunks 9.00
Grated 6.75